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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/922,923

08/07/2001

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09/01/2006

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EXAMINER

WANG, TED M

ART UNIT

PAPER NUMBER

2611

DATE MAILED: 09/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 09/922,923	Applicant(s) KIM, JUNG-HO	
	Examiner Ted M. Wang	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 June 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-5,7 and 8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments, filed on 06/16/2006, have been fully considered but they are not persuasive. The Examiner has thoroughly reviewed Applicants' arguments but firmly believes that the cited reference to reasonably and properly meet the claimed limitations.

#### Independent Claims 1 and 5

(1) *Applicants' argument* – "In response, Applicant submits that Benayoun discloses that the beginning of the bit counting of the timer is synchronized every time the communication starts. In other words, only synchronization of the bit counting is performed every time the communication starts, but control of the clock frequency is not performed every time. Since this feature is not taught or suggested by Benayoun, Applicant submits that Benayoun does not anticipate claim 1." as required by claim 1."

#### *Examiner's response* –

In Benayoun's reference, column 3 lines 26-32, teaches that during the synchronization stage at the beginning of the transmission, in case the parity test is bad or the RXD signal is equal to zero, or the start bit is found whereas a first or second stop bit is expected, the clock generator (160) is incremented by the control circuit through its INCCLK and the same process as described above is executed up to synchronize and to find the good transmission speed. Since clock frequency of the timer (220) is provided by the clock generator (160), increment

(control) of the frequency of clock generator (160) will result in the increase of the clock frequency of the timer (220). In other words, Benayoun's reference not only teaches performing synchronization of the bit counting every time the communication starts, but also controlling the clock frequency of the timer each time.

Thus, for the explanation addressed in the above paragraph, the rejection under 35 U.S.C. 102(e) with Benayoun's reference is adequate.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Benayoun et al. (US 6,016,309).

- With regard claim 1, Benayoun et al. discloses an apparatus installed between two devices for relaying communication comprising:

a timer (Fig.1 element 160) for determining data transmission speed (column 2 line 30 – column 3 line 31, and column 10 lines 47-67) from the external modem (Fig.1 element 10); and

a timer controller (Fig.1 elements 100, 170, and 180, 230, 240) for performing an initial communication process (column 2 lines 49-62) for determining data transmission speed of a line connecting the device and the external device (column 2 line 30 – column 3 line 31 and column 10 lines 47-67), the timer controller matching the data transmission speed with speed of the line (column 1 lines 55-58 and column 3 lines 15-25) by controlling output frequency of the timer based on the data transmission speed of the line (column 2 line 30 – column 3 line 31 and column 10 lines 47-67) determined by the training process (column 2 lines 45-62 and column 3 lines 42-47, where the training process including the parameters of the data length, the parity, and the number of stop bits),

wherein the timer controller (Fig.1 elements clock generator 160, parity checker 180, control circuit 170 Counter1 230, counter2 240, and microcontroller 100) performs the training process (column 2 lines 49-62) and controls the clock frequency of the timer (220) each time the modem attempts a connection to the external modem (column 3 lines 19-32).

In column 2 line 30 – column 3 line 31 of Benayoun's reference, Benayoun teaches an adapter implemented inside a modem (DCE Peripheral) (110) to automatically adapt the transmission speed, the data length and the stop bits which characterize an asynchronous transmission (column 1 lines 55-58). A DCE, or a modem (10) is connected by a receive and transmit pins referred as RXD and TXD to the adapter through a connector (120) which may be a RS 232

connector. Lead RXD is also connected to a control circuit (170) and a parity checker (180). A clock generator (160) is provided to the adapter and is set at the lowest speed of 110 bps at power on reset. At the beginning of the transmission, the bits are serially transmitted on lead RXD. The control circuit waits for the start bit signal, which has a low level, and as soon as it is detected, it sends a synchronous signal SYNC to a timer (220) to synchronize the beginning of the bit counting. This timer is also clocked at the lowest rate of 110 bps. The control circuit (170) compares the parity input signal to the incoming signal RXD base on the bit state of B8, B9, and B10 input from the timer (220) and increases counters (230, 240). These operations are repeated until one of both counters (230,240) reaches a predetermined value. When the predetermined value is reached, its overflow pin OV rises and the microcontroller is made aware of this information by input pin IN1 or IN2. Then, the microcontroller reads the speed of the asynchronous communication through its pin C0-C3. Its pins IN1 and IN2 determine if the configuration has one or two stop bits corresponding to the speed of the communication. Afterwards, the microcontroller resets the system and programs its receive and transmit internal UART to the speed rate of the clock generator, the data bit length, the parity, and the number of stop bits. The communication is then established between the modem (DCE) (10) and the external modem (peripheral DCE) (110) connected to the UART of the microcontroller via its DMA link. Thus, for the explanation addressed in the above paragraph, the Benayouns' reference teaches the timer

controller matching the data transmission speed with speed of the line by controlling output frequency of the timer based on the data transmission speed of the line determined by the training process.

In column 2, lines 54-59 of Benayoun's reference, Benayoun teaches "**At the beginning of the transmission**, the bits are serially transmitted on lead RXD. The control circuit waits for the start bit signal which has a low level and as soon as it is detected, it sends a synchronous signal SYNC to a timer (220) to synchronize the beginning of the bit counting." as cited, teaches the beginning state of a communication between two modems (a DTE 10 and a DCE 110)" as cited, and column 3, lines 19-25, teaches the DTE 10 and DCE 110 being communicated with a determined transmission speed as described in column 10 lines 52-67 and column 2 line 30 – column 3 line 31. Clearly, every time the DTE (modem) 10 wants to communicate an external DCE (modem) 110 it will go through the process as described in the above paragraph. Thus, for the explanation addressed in the above paragraph, the Benayouns' reference teaches a timer controller determining the clock value of the timer whenever the modem attempts a connection to the external modem.

Further, in Benayoun's reference, column 3 lines 26-32, teaches that during the synchronization stage at the beginning of the transmission, in case the parity test is bad or the RXD signal is equal to zero, or the start bit is found whereas a first or second stop bit is expected, the clock generator (160) is incremented by the control circuit through its INCCCLK and the same process as

described above is executed up to synchronize and to find the good transmission speed. Since clock frequency of the timer (220) is provided by the clock generator (160), increment (control) of the frequency of clock generator (160) will result in the increase of the clock frequency of the timer (220). In other words, Benayoun's reference not only teaches performing synchronization of the bit counting every time the communication starts, but also controlling the clock frequency of the timer each time.

Benayoun et al. discloses all of the subject matter as described above except for specifically teaching that the apparatus is a modem. It is inherent that the apparatus as taught by Benayoun et al. is a modem since it performs the same function (receiving data from a DTE, decoding the received data, matching the data speed and configuration, then adapting the data speed and configuration to communicate with both DCE and DTE) as that of a modem. It is also inherent and well known in the art that the DCE/DTE is a modem.

- With regard claim 5, which is a method claim related to claim 1, all limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:



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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3, 4, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benayoun et al. (US 6,016,309) in view of Wu (US 6,219,378).

- With regard claims 3 and 4, Benayoun et al. further teaches that the apparatus can be implemented into either a DCE or a DTE (column 2 lines 36-44).

Benayoun et al. discloses all of the subject matter as described above except for specifically teaching wherein the line is a telephone line and the modem is Asymmetrical Digital Subscriber Line ("ADSL").

However, Wu teaches a digital subscriber line modem, including an ADSL modem (column 2 lines 12-51 and Fig.8), initialization operation to communicate between the central office where central office contains a modem rack with plurality of ADSL modems (Fig.1 element 20 and column 4 lines 61-67) and subscribers' modem (Fig.1 element 10 and column 4 lines 25-67) with a training process (Fig.8 and 9 elements 62C and 62R, column 11 lines 58-67) to plurality of users (Fig.1 element H) so that the available data communication rates and accuracy are improved (column 3 lines 4-8).

The method of initializing and training the transceivers in modems between central office and subscriber in an MDSL system, provides important benefits in achieving the goals of low-cost, high-performance, modem

communication over twisted pair wire facilities TWP (column 18 lines 45-60). In addition, the ADSL modem, the most publicized technology currently— asymmetric Digital Subscriber line modem, will improve the data transmission rate in both upstream and downstream over a single copper twisted pair (column 2 lines 12-31). Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Benayouns' apparatus inside the ADSL modem as taught by Wu to communicate between the central office and subscribers' modems with a training process so as to maximize the available data communication rates and accuracy.

- With regard claim 7, which is a method claim related to claim 3, all limitation is contained in claim 3. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claim 8, which is a method claim related to claim 4, all limitation is contained in claim 4. The explanation of all the limitation is already addressed in the above paragraph.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

7. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M Wang  
Examiner  
Art Unit 2611

Ted M. Wang

  
CHIEH M. FAN  
SUPERVISORY PATENT EXAMINER